F-02ED0320

FIG. 1

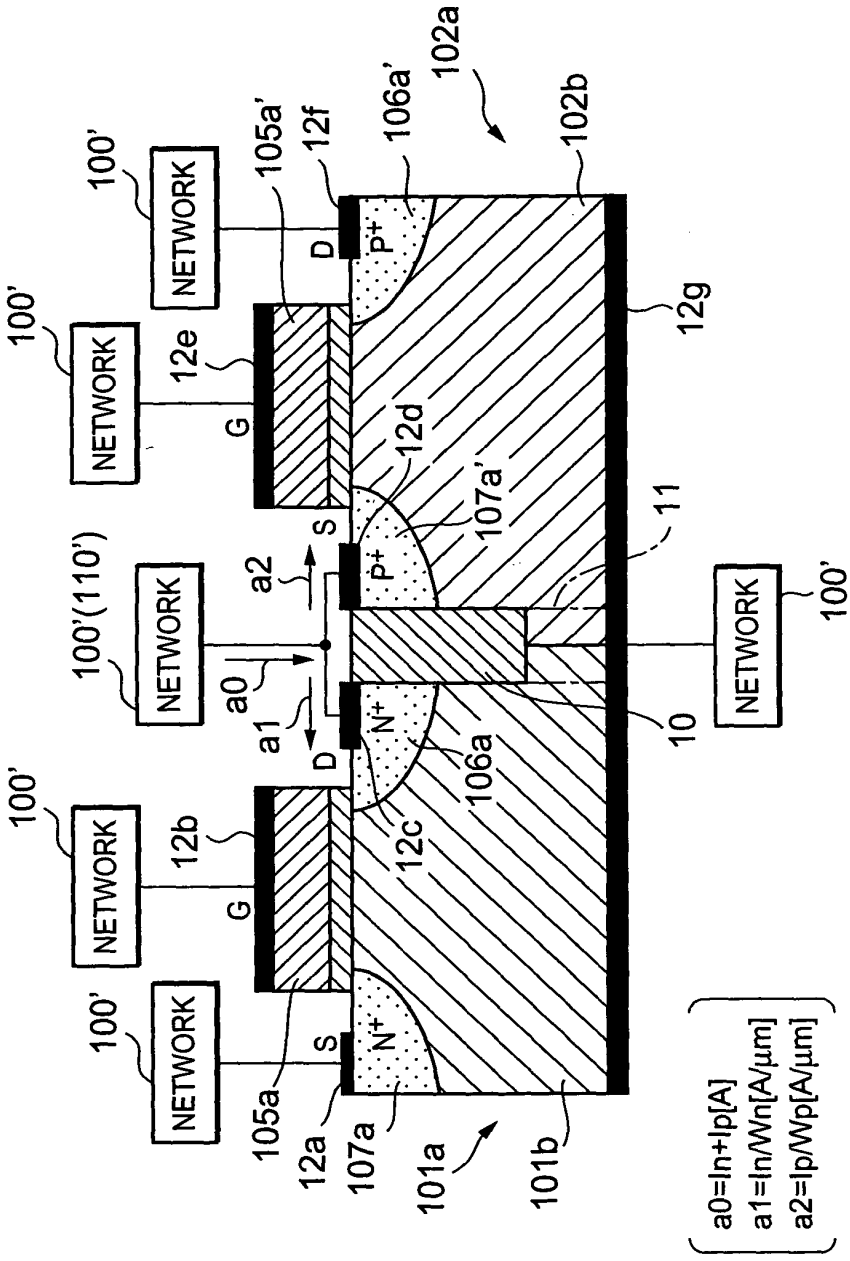

FIG. 2A

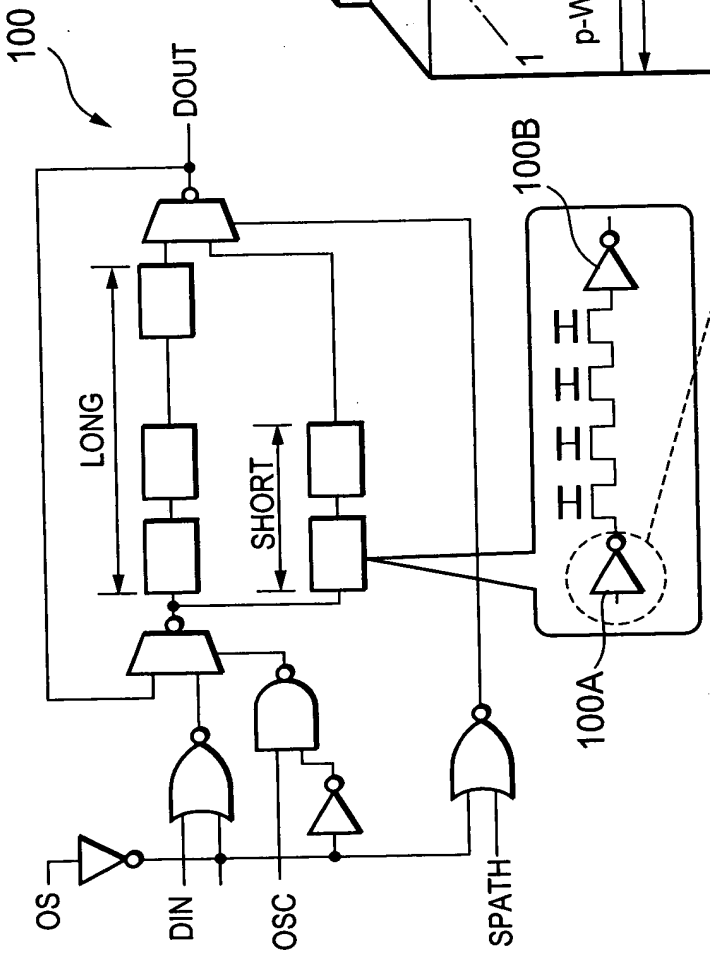
100
DOUT
LONG
SHORT
OS
DIN
OSC
SPATH
100B
100A

FIG. 2B

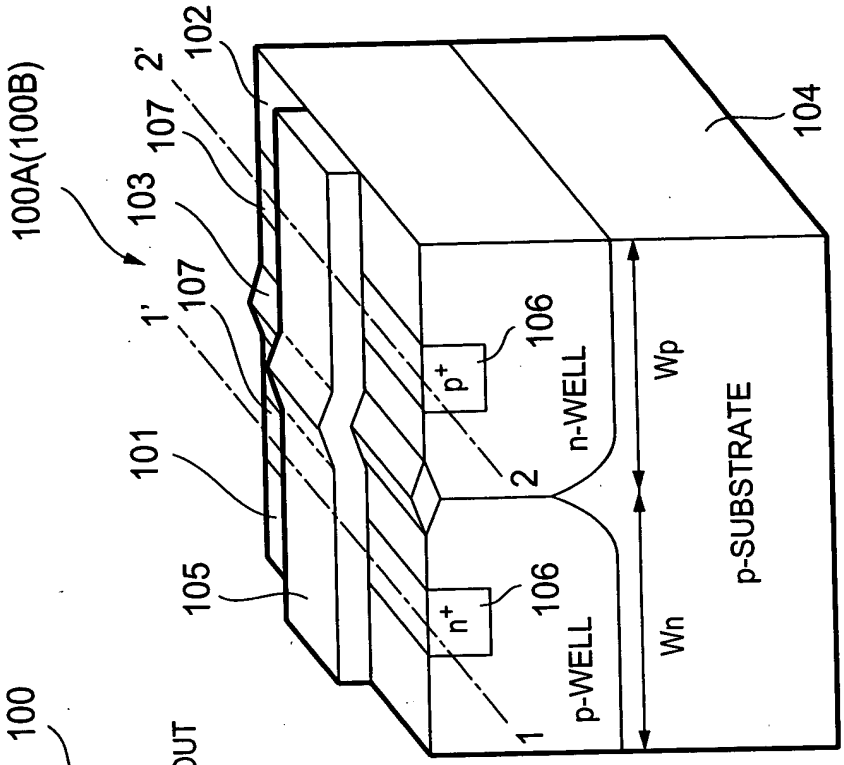
100A(100B)
102
2'
107
103
1'
101
105
104
106
p+
n+
n-WELL
p-WELL
p-SUBSTRATE
Wp
Wn
1
2

FIG. 3

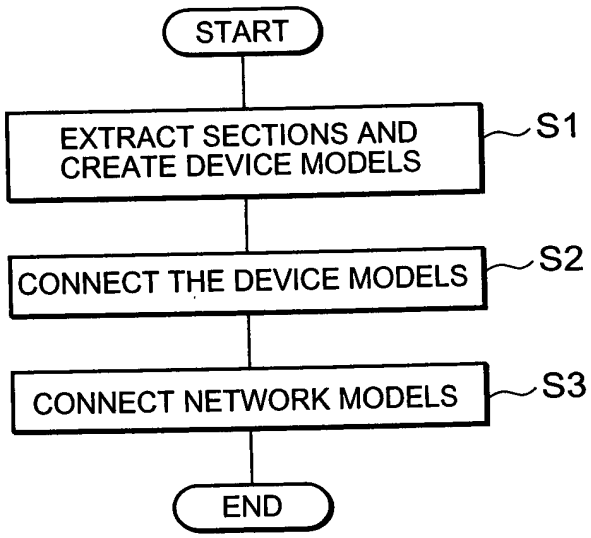
START
EXTRACT SECTIONS AND CREATE DEVICE MODELS
S1
CONNECT THE DEVICE MODELS
S2
CONNECT NETWORK MODELS
S3
END

FIG. 4

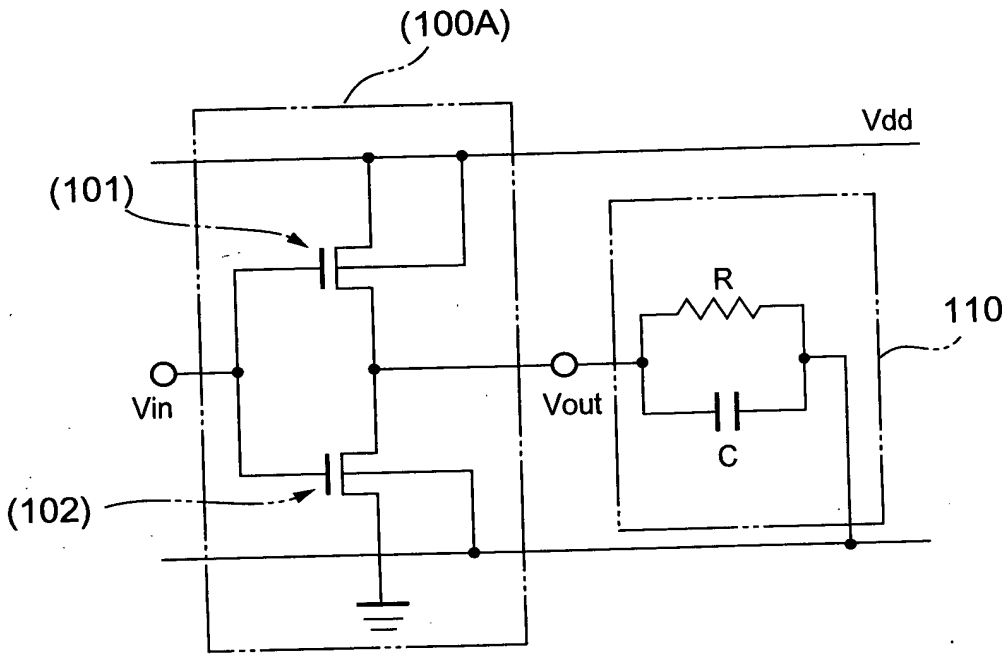

FIG. 5

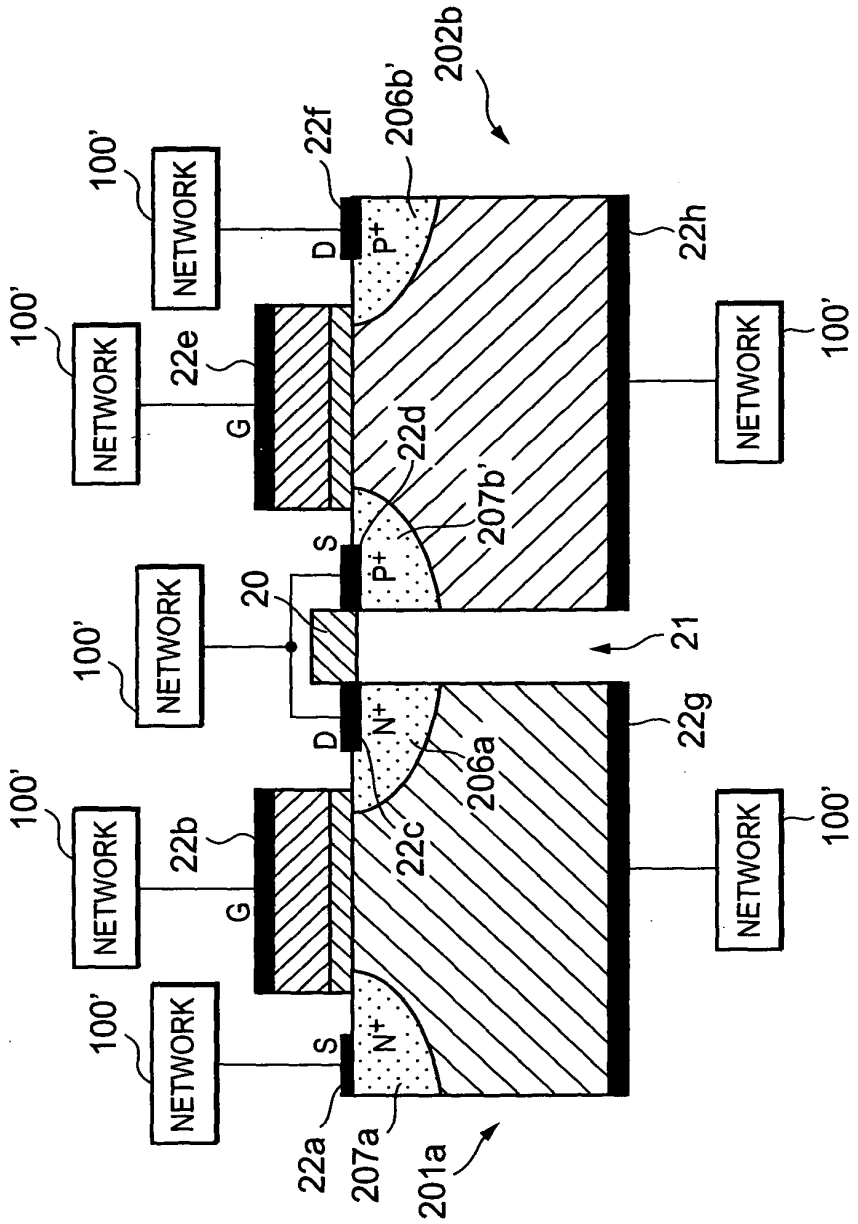
202b
206b'
22f
100'
NETWORK
D
P+
22h
22e
G
22d
207b'
S
20
21
N+
22g
206a
22c
22b
22a
207a
201a

FIG. 6

(1) $-\nabla \cdot (\varepsilon \nabla \psi) = q(ND - NA + p - n)$

(2) $\partial n / \partial t + \nabla \cdot Jn = GR$

(3) $\partial p / \partial t - \nabla \cdot Jp = GR$

(4) $$\begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} n \\ p \\ \psi \end{bmatrix} = \begin{bmatrix} n0 \\ p0 \\ \Psi 0 + V1 \end{bmatrix}$$

(5) $\int divJn\, dv + \int divjp\, dv = i1$

(6) $JA \cdot \Delta y1 + JB \cdot \Delta x1 + JC \cdot \Delta y1 = (Vext - \psi p1)/r1$

(7) $\int divJn\, dv + \int divjp\, dv = i2$

(8) $JC \cdot \Delta y1 + JD \cdot \Delta x2 + JE \cdot \Delta y1 = (Vext - \psi p2)/r2$

ε : DIELECTRIC CONSTANT
q: UNIT CHARGE
ND: DONOR CONCENTRATION
NA: ACCEPTOR CONCENTRATION
n: ELECTRON CONCENTRATION
p: POSITIVE HOLE CONCENTRATION
ψ : POTENTIAL
Jn: CURRENT DENSITY (ELECTRON)
Jp: CURRENT DENSITY (POSITIVE HOLE)
GR: NUMBER OF ELECTRONS (POSITIVE HOLES) GENERATED PER UNIT VOLUME PER UNIT TIME
n0, p0, $\psi 0$: VALUES AT THERMAL EQUILIBRIUM
V1: EXTERNAL VOLTAGE

FIG. 7